CONSULTING ENGINEERS, INC.
Civil Infrastructure Preservation

03-063

July 19, 2004

Adam Harvey, P.E.
URS Corporation
2520 Venture Oaks Way, Suite 250
Sacramento, CA 95833

SUBJECT: Coating Inspection Report for US Filter EPA Carbon Filter Vessels in San Bernardino, CA

Dear Adam,

V&A Consulting Engineers (V&A) has completed the inspection per the current scope of work for the US Filter vessels held at San Bernardino, CA. The vessels are configured in two banks, with 12 vessels in each bank. The naming convention for the vessels will include Bank 1 as the west bank, and Bank 2 as the east bank. Vessel numbers for each bank will increase from A to L from south to north, respectively. Visual inspection was conducted on Vessels A to L in Bank 1. Repairs were observed on Vessels 1A, 2A, 12A, and 2B. A copy of the field inspector's notes has been included with this report. The following is a summary of the inspection reports and recommendations for future vessel repairs and inspections.

The overall visual inspection of the vessels showed several areas of concern. Several areas were observed where the prime coat could be seen through the finish coat. This is an indication that the mil thickness on the finish coat may be too thin. The mil thickness for these areas can be more accurately assessed with the use of a Tooke Gauge. This is a destructive test, but will give an accurate reading of mil thickness for the base coat and the finish coat in these areas.

Contamination was observed at random locations on many of the vessels. Some of the contaminants were embedded in abraded surfaces on the vessel while others were deposited on the coating surface. These contaminants should be removed to prevent early coating failure. Most of the contamination is assumed to have taken place during transportation and erection of the vessels at the San Bernardino project site. Please see inspection notes for further description of contaminant locations.

In addition, coating on many of the flanges and piping associated with the erection of the vessels has been damaged and holidays are evident. V&A is not aware if the coating specification for the vessels

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includes coating of the hardware. However, all fastening hardware (nuts and bolts) has not been coated. Coating on the pipe connections on top of the vessels has been damaged and needs to be touched up. The legs of the vessels have undergone erection damage and should be touched up. Please see the inspection notes for detail of the locations of the damaged areas on the inspected vessels.

The inspector observed the repair on the interior of four vessels (1A, 2A, 12A, and 2B). Repair areas were washed with MEK to relieve the repair area of contamination and were sanded to provide a roughened surface for proper coating adhesion. The proper procedures were followed for the mixing of Parts A, B, and C of the repair material. Areas on the vessel interiors with holidays were repaired with Plasite 4110 vinyl ester to a wet film thickness of 4 to 6 mils. Holiday detection could not be conducted at this time due to cure time restrictions. Repairs were not conducted at the locations where the dry film thickness exceeded the manufacturer's recommended thickness. It is recommended that a formal letter be produced by Plasite to confirm the allowance of areas with dry film thickness beyond the recommended dry film thickness, if one has not been provided to date.

It is strongly recommended that an inspector be present on-site during the remainder of the repair process, as it will be very difficult to confirm if the repairs were done correctly. In addition, it is recommended that the repairs be inspected for holidays and dry film thickness once the repair process is complete.

Please call if you have any questions or comments.

Sincerely,
V&A CONSULTING ENGINEERS
Civil Infrastructure Preservation

Glenn Willson, P.E.
Engineering Services Manager

Enclosures: Photographs, Daily Reports, and Visual Inspection Reports